**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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| Appl. No. | : | Not yet assigned | Confirmation No. | Not yet assigned |
| Applicant | : | MALING, CHARLES | | |
| Filed | : | March 19, 2004 | | |
| Title | : | EMBRACED MOVING CYLINDER AND METHODS OF USING SAME | | |
| TC/AU | : | Not yet assigned | | |
| Examiner | : | Not yet assigned | | |
| Docket No. | : | 3052/1 | | |
| Customer No. | : | 23638 | | |

Honorable Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

**PETITION TO MAKE SPECIAL PURSUANT TO 37 C.F.R. 1.102**

Sir:

This is a petition to make special, pursuant to 37 C.F.R. 1.102(c), the above-identified application submitted herewith. Applicant respectfully requests that the application be made special on the grounds that the invention of the present application will materially enhance the quality of the environment, and will materially contribute to the development and conservation of energy resources. The following statement is made in support of Applicant's petition pursuant to M.P.E.P. §708.02.

Enhancement of Environmental Quality

It is well known that four stroke engines are inherently cleaner burning than equivalent two stroke engines. The invention of this application provides a four stroke engine with the per cylinder mechanical simplicity and the compactness of existing art two stroke engines. As such, adoption of the technology of this invention in applications where two stroke engines are currently used would lead to significant reductions in polluting emissions in the United States and abroad.

The four stroke embodiments of the present invention use separate working chambers for intake and exhaust strokes. As such, the mixing of intake with exhaust is more easily avoided and engines can be more flexibly laid out without the polluting emissions which normally accompanies "valve overlap" of intake and exhaust.

The present invention can enable a host of efficiency improvements over existing art four stroke engines. To the extent that less fuel is required to power given applications, the necessary emissions associated with the burning of fuel is thereby reduced.

Development and Conservation of Energy Resources

As noted above, four stroke engines are more fuel efficient than two stroke engines. The present invention reduces fuel consumption by enabling the substitution of four stroke engines for two stroke engines in most current applications of the latter. Furthermore, the four stroke embodiments of this invention offer multiple possible efficiency gains and thus

energy savings when compared to the existing art. The cumulative effect of these savings would be significant even where the individual effects themselves on a single engine are only marginal. Many of the savings are likely significant in their own right.

The present invention enables provides lower mechanical losses associated with running a valve train and in reversing the momentum of reciprocating parts. The present invention enables lower mechanical losses as the invention has a greater mechanical advantage in transmission of force from piston to crankshaft. The present invention can dramatically lower the weight and size of engines with two sided operation when compared to the existing art. Where the transport of the engines is part of what is being powered by the engines less fuel is required. The present invention provides a more efficient way to capture the known efficiency gains from having an expansion volume larger than the compression volume. The present invention provides a way to avoid the loss of fuel from overlap of the intake and exhaust phases, and enables a more complete capture of the energy from combustion by avoiding any overlap of the compression and combustion phases. In addition, the present invention provides a way to fine tune engine performance under different conditions by easy change of the compression ratio, and a way to more easily avoid the throttle losses at low power demand. Furthermore, the present invention allows for a greater variety of hybrids due to the invention's much greater mechanical simplicity, and compactness, when compared to the existing art.

The great mechanical simplicity of the invention and compactness of certain

embodiments of the invention will save on the energy necessarily consumed in the manufacture of the invention. Such savings may be direct or indirect (in compact embodiments) due to reduced requirements for materials.

For the reasons stated above, Applicant respectfully requests that the above referenced application be made special and advanced out of turn for examination. No fee is required for this petition pursuant to 37 C.F.R. 1.102(c).

Respectfully submitted,

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